

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate;
irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said laser beam is a second harmonic component having a wavelength of 532 nm generated from a continuously-oscillating light source,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 2 (currently amended): A method for manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate;
irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer; and

forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said linear laser beam is a second harmonic component having a wavelength of 532 nm generated from a continuously-oscillating light source,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said linear laser beam in parallel with a carrier flow direction in said channel region.

Claim 3 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said laser beam is a third harmonic component generated from a continuous-oscillate light source,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 4 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer; and

forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said linear laser beam is a third harmonic component generated from a continuous-oscillate light source,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said linear laser beam in parallel with a carrier flow direction in said channel region.

Claim 5 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said laser beam is a second harmonic component of a Nd:YAG laser,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 6 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer; and

forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said linear laser beam is a second harmonic component of a Nd:YAG laser,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said linear laser beam in parallel with a carrier flow direction in said channel region.

Claim 7 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and
- forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said laser beam is a third harmonic component of a Nd:YAG laser,
wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 8 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer; and
- forming source, drain and channel region of said thin film transistor within said semiconductor layer,

wherein said linear laser beam is a third harmonic component of a Nd:YAG laser,
wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said linear laser beam in parallel with a carrier flow direction in said channel region.

Claim 9 (currently amended): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

- forming a semiconductor layer over a substrate; and

irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer, while moving said substrate in a direction approximately perpendicular to a lengthy direction of said linear laser beam,

wherein said linear laser beam is a second harmonic component having a wavelength of 532 nm generated from a continuously-oscillating light source.

Claim 10 (currently amended): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

patterning the crystallized semiconductor layer to form an active layer of said thin film transistor,

wherein said laser beam is a second harmonic component having a wavelength of 532 nm generated from a continuously-oscillating light source.

Claim 11 (withdrawn): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate; and

irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer, while moving said substrate in a direction approximately perpendicular to a lengthy direction of said linear laser beam,

wherein said linear laser beam is a third harmonic component generated from a continuous-oscillate light source.

Claim 12 (withdrawn): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

patterning the crystallized semiconductor layer to form an active layer of said thin film transistor,

wherein said laser beam is a third harmonic component generated from a continuous-oscillate light source.

Claim 13 (withdrawn): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate; and

irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer, while moving said substrate in a direction approximately perpendicular to a lengthy direction of said linear laser beam,

wherein said linear laser beam is a second harmonic component of a Nd:YAG laser.

Claim 14 (withdrawn): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate;

irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

patterning the crystallized semiconductor layer to form an active layer of said thin film transistor,

wherein said laser beam is a second harmonic component of a Nd:YAG laser.

Claim 15 (withdrawn): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate; and

irradiating said semiconductor layer with a linear laser beam to crystallize said semiconductor layer, while moving said substrate in a direction approximately perpendicular to a lengthy direction of said linear laser beam,
wherein said linear laser beam is a third harmonic component of a Nd:YAG laser.

Claim 16 (withdrawn): A method of manufacturing a semiconductor device having at least one thin film transistor, said method comprising the steps of:

forming a semiconductor layer over a substrate;
irradiating said semiconductor layer with a laser beam to crystallize said semiconductor layer; and

patterning the crystallized semiconductor layer to form an active layer of said thin film transistor,

wherein said laser beam is a third harmonic component of a Nd:YAG laser.

Claim 17 (previously presented): A method according to any one of claims 1, 2, 9 and 10, wherein said semiconductor layer comprises amorphous silicon.

Claim 18 (previously presented): A method according to any one of claims 1, 2, 9 and 10, wherein said semiconductor layer comprises silicon and germanium.

Claim 19 (previously presented): A method according to any one of claims 1, 2, 9 and 10, wherein the crystallized semiconductor layer contains carbon at a concentration not higher than 5×10^{18} atoms/cm³.

Claim 20 (previously presented): A method according to any one of claims 1, 2, 9 and 10, wherein the crystallized semiconductor layer contains oxygen at a concentration not higher than 5×10^{19} atoms/cm³.

Claim 21 (withdrawn): A method for manufacturing a semiconductor device, said method comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a CW laser beam to crystallize said semiconductor layer; and
- patterning the crystallized semiconductor layer to form an active layer including a channel region,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 22 (withdrawn): A method for manufacturing a semiconductor device having at least one thin film transistors, said method comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a CW laser beam having a wavelength of 1064 nm to crystallize said semiconductor layer; and
- patterning the crystallized semiconductor layer to form an active layer including a channel region,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 23 (withdrawn): A method for manufacturing a semiconductor comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a CW laser beam having a wavelength of 532 nm to crystallize said semiconductor layer; and

patterning the crystallized semiconductor layer to form an active layer including a channel region,

 wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 24 (withdrawn): A method for manufacturing a semiconductor device comprising the steps of:

 forming a semiconductor layer over a substrate;

 irradiating said semiconductor layer with a CW laser beam having a wavelength of 355 nm to crystallize said semiconductor layer; and

 patterning the crystallized semiconductor layer to form an active layer including a channel region,

 wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 25 (withdrawn): A method for manufacturing a semiconductor device comprising the steps of:

 forming a semiconductor layer over a substrate;

 irradiating said semiconductor layer with a CW laser beam comprising Nd to crystallize said semiconductor layer; and

 patterning the crystallized semiconductor layer to form an active layer including a channel region,

 wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 26 (withdrawn): A method for manufacturing a semiconductor device comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a second harmonic of a CW laser beam comprising Nd to crystallize said semiconductor layer; and
- patterning the crystallized semiconductor layer to form an active layer including a channel region,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 27 (withdrawn): A method for manufacturing a semiconductor device comprising the steps of:

- forming a semiconductor layer over a substrate;
- irradiating said semiconductor layer with a third harmonic of a CW laser beam comprising Nd to crystallize said semiconductor layer; and
- patterning the crystallized semiconductor layer to form an active layer including a channel region,

wherein the irradiation of said semiconductor layer is conducted in such a manner that said semiconductor layer is scanned with said laser beam in parallel with a carrier flow direction in said channel region.

Claim 28 (withdrawn): The method according to any one of claims 21, 22, 23, 24, 25, 26 or 27 wherein said semiconductor layer comprises amorphous silicon.

Claim 29 (withdrawn): The method according to any one of claims 21, 22, 23, 24, 25, 26 or 27 wherein the CW laser beam is a YAG laser beam.

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Claim 30 (withdrawn): The method according to any one of claims 21, 22, 23, 24, 25, 26 or 27 wherein said semiconductor layer is melted by the irradiation of the laser beam.